



# **Air Quality Permitting Statement of Basis**

**June 5, 2006**

**Tier I Operating Permit No. T1-050109**

**Avista Corporation  
Rathdrum**

**Facility Identification No. 055-00040**

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**PUBLIC COMMENT**

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## Acronyms, Units, and Chemical Nomenclature

AIRS	Aerometric Information Retrieval System
CEMS	Continuous Emissions Monitoring System
CFR	Code of Federal Regulations
CO	Carbon monoxide
DEQ	Department of Environmental Quality
EPA	U.S. Environmental Protection Agency
HAPs	hazardous air pollutants
IDAPA	A numbering designation for all administrative rules in Idaho promulgated in accordance with the Idaho Administrative Procedures Act
MACT	maximum achievable control technology
MMBtu/hr	Million British thermal units per hour
NESHAP	National Emission Standards for Hazardous Air Pollutants
NO <sub>x</sub>	Nitrogen oxides
NSPS	New Source Performance Standards
PM	Particulate matter
PM <sub>10</sub>	Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers
PSD	prevention of significant deterioration
PTC	Permit to Construct
SIC	Standard Industrial Classification
SIP	State Implementation Plan
SO <sub>2</sub>	Sulfur dioxide
VOC	Volatile Organic Compound

## **1. PURPOSE**

The purpose of this memorandum is to explain the legal and factual basis for this draft Tier I operating permit in accordance with IDAPA 58.01.01.362.

The Department of Environmental Quality (DEQ) has reviewed the information provided by Avista Corporation (Avista) regarding operation of its facility located near Rathdrum. This information was submitted based on the requirements to submit a Tier I operating permit application in accordance with IDAPA 58.01.01.313.

## **2. FACILITY DESCRIPTION**

Avista's Rathdrum facility consists of two General Electric Model PG7111EA Frame 7 combustion gas turbine package power plants. Each turbine package can produce approximately 83.5 megawatts of electricity at full load operating conditions. The turbines operate on a simple cycle basis and are fueled exclusively by pipeline-quality natural gas. Avista does not store or use backup fuels at the Rathdrum facility. Avista constructed the project to provide electricity on an as-needed basis to offsite consumers during peak power demands.

Since the facility was designed to provide electricity on an intermittent basis, Avista does not generally operate the turbines on a continual basis. When the need arises, the turbines (one or both) are started up, brought up to full load (base load), and maintained at full load until they are shut down. The duration of operation of the turbines depends on the demand.

## **3. FACILITY/AREA CLASSIFICATION**

This facility emits or has the potential to emit a regulated criteria air pollutant in amounts greater than or equal to 100 tons per year; therefore, it is a major facility as defined by IDAPA 58.01.01.008.10. This facility is not considered major for hazardous air pollutant (HAP) emissions because the facility does not emit or have the potential to emit a single HAP in amounts greater than 10 T/yr or a combination of HAPs in amounts greater than 25 T/yr.

This facility is not a designated facility as defined by IDAPA 58.01.01.006.26.

This facility is not a major facility as defined by IDAPA 58.01.01.205 because previous permits issued to the facility limit regulated criteria air pollutant emissions to amounts less than 250 tons per year.

The Standard Industrial Code defining this facility is 4911, and the Aerometric Information Retrieval System (AIRS) facility classification is A. Details of the AIRS facility-wide classification are in Appendix A.

The facility is located in Kootenai County, which is classified as unclassifiable for all federal and state criteria pollutants. There are no Class I areas within 10 km of the facility. This facility is located in Air Quality Control Region No. 62 and Universal Transverse Mercator Zone 11.

## **4. APPLICATION SCOPE**

On April 20, 2005, DEQ received an application from Avista for the renewal of their Tier I Operating Permit for their Rathdrum combustion turbine project. The permittee did not request any changes to their permit in their April 2005 application.

On October 20, 2005, DEQ received a letter from Avista as a supplement to the April 2005 application. The permittee requested a change to their Tier I operating permit to modify the compliance demonstration method for the sulfur dioxide (SO<sub>2</sub>) standards established in accordance with Subpart GG of Part 60 of Title 40 of the Code of Federal Regulations (40 CFR 60 Subpart GG).

On December 5, 2005, DEQ received a letter from Avista as a supplement to the April 2005 application. The permittee again requested a change to the compliance demonstration method for the sulfur dioxide standards established in accordance with 40 CFR 60 Subpart GG. The permittee also requested a change to the triggers for quality assurance activities regarding the carbon monoxide (CO) Continuous Emission Monitoring Systems (CEMS) installed on the exhaust stacks of each turbine.

The permit changes requested by Avista are discussed in more detail in the Regulatory Analysis section of this memorandum.

## **5. SUMMARY OF EVENTS**

April 20, 2005	DEQ received an application for the renewal of Avista's Tier I operating permit.
June 9, 2005	DEQ determined the application to be complete.
October 20, 2005 and December 5, 2005	DEQ received additional information from Avista as supplements to the April 2005 application.

### **5.1 Permitting History**

May 21, 1993	DEQ issued Permit to Construct (PTC) No. 055-00040 to Washington Water Power (the predecessor to Avista) for the construction of the Rathdrum facility, including the two existing combustion gas turbines. The permit established hourly and annual emissions limits for particular matter (PM), particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers (PM <sub>10</sub> ), SO <sub>2</sub> , volatile organic compounds (VOCs), CO, and nitrogen oxide (NO <sub>x</sub> ) emissions.
August 6, 1993	DEQ issued PTC No. 055-00040. This PTC increased the total allowable hours of operation of the combustion turbines.
August 4, 1999	DEQ issued PTC No. 055-00040. This PTC increased the total allowable hours of operation of the combustion turbines, increased the annual emissions limits for PM, PM <sub>10</sub> , SO <sub>2</sub> , and VOCs, and established CEMS as the method of compliance for NO <sub>x</sub> and CO emissions.
December 29, 2000	DEQ issued Tier I Operating Permit No. 055-00040.
September 7, 2001	DEQ issued PTC No. 055-00040. This permit increased the allowable hours of operation of the combustion turbines and increased the annual emissions limits for PM, PM <sub>10</sub> , and VOCs.
October 16, 2001	DEQ issued Tier I Operating Permit No. 055-00040. The permit incorporated the permit conditions from PTC No. 055-00040, September 7, 2001.

## **6. PERMIT ANALYSIS**

### **6.1 Basis of the Analysis**

The following documents were relied upon in preparing this memorandum and the Tier I operating permit:

- Compliance certifications received on October 31, 2003, October 15, 2004, and October 27, 2005;
- Tier I operating permit application, received April 20, 2005, and application supplements, received October 20, 2005, and December 5, 2005;
- Tier I Operating Permit No. 055-00040, October 16, 2001;
- PTC No. 055-00040, September 7, 2001;
- Compilation of Air Pollutant Emission Factors, AP-42, Fifth Edition, January 1995, Office of Air Quality Planning and Standards, U.S. Environmental Protection Agency (EPA); and
- Guidance developed by the EPA and DEQ.

### **6.2 Emissions Description and Emissions Inventory**

The primary emissions from Avista's Rathdrum facility are gaseous emissions formed as combustion by-products during operation of the two combustion turbines. The criteria pollutants of concern are CO and NO<sub>x</sub>. Natural gas combustion at this facility also results in emissions of PM, PM<sub>10</sub>, SO<sub>2</sub>, VOCs and organic compound emissions, some of which are HAPs and/or toxic air pollutants (TAPs).

The facility does have minor sources of fugitive dust from vehicles traveling within the facility. There are about 1,500 linear feet of paved road/maintenance area at the facility; of which only a small portion is traveled on a daily basis. There are also some unpaved areas within the facility boundary; however, vehicles do not normally travel in these areas.

DEQ does not expect the facility's emissions have changed compared to the previous permit term.

Appendix B contains tables of estimated emissions expected from the combustion turbines. The hourly criteria pollutant emissions are based on manufacturer guarantees. The annual criteria pollutant emissions listed in Appendix B are emissions limits established in previously issued permits on the turbines. The annual emissions limits are used to check for rule applicability.

HAP emissions are based on emission factors listed in Table 3.1-3, *Compilation of Air Pollutant Emission Factors, Volume 1, Stationary Point and Area Sources*, AP 42, Fifth Edition, United States Environmental Protection Agency.

## **7. REGULATORY ANALYSIS**

### ***Facility-Wide Applicable Requirements***

#### **7.1 IDAPA 58.01.01.313.03 – Renewals of Tier I Operating Permits**

This rule provides the regulatory time limits within which the owner or operator of a Tier I source is required to submit a complete Tier I operating permit application. Avista met the requirements of the

rule by submitting the renewal application on April 20, 2005, which was at least six months prior the permit expiration date of October 16, 2006.

## **7.2 New Source Performance Standards – 40 CFR 60, IDAPA 58.01.01.590**

The facility is subject to the New Source Performance Standards (NSPS) that apply to stationary gas turbines. Specifically, 40 CFR 60 Subpart GG applies to all stationary gas turbines with a heat input at peak load equal to or greater than 10 million British thermal units per hour (MMBtu/hr), based on the lower heating value of the fuel fired, that also commenced construction, modification, or reconstruction after October 3, 1977. The heat input at peak load, based on the lower heating value of the fuel, of each turbine at Avista's Rathdrum facility is approximately 860 MMBtu/hr, and the turbines were installed in 1994; therefore, Subpart GG applies to the turbines.

Several provisions of Subpart GG have been revised since the issuance of Avista's current Tier I operating permit. These revisions have been incorporated into the renewed Tier I operating permit and are further discussed in Section 8 of this Statement of Basis.

DEQ evaluated the Standards of Performance for Storage Vessels for Petroleum Liquids and Standards of Performance for Volatile Organic Liquid (Including Petroleum) Storage Vessels (40 CFR 60 Subparts K and Ka), which are considered potentially applicable to the Rathdrum facility. DEQ determined these NSPSs do not, in fact, apply to this facility. Subparts K and Ka apply to vessels with volumes greater than 40 cubic meters ( $m^3$ ); the permit application indicates all storage vessels at the facility used to store volatile organic liquids have a capacity less than or equal to 40  $m^3$ .

## **7.3 National Emission Standard for Hazardous Air Pollutants and Maximum Achievable Control Technology – 40 CFR Parts 61 and 63, IDAPA 58.01.01.591**

There are no currently promulgated National Emissions Standards for Hazardous Air Pollutants or Maximum Achievable Control Technology rules that apply to this facility because the facility does not emit or have the potential to emit a single HAP in amounts greater than 10 T/yr or a combination of HAPs in amounts greater than 25 T/yr.

## **7.4 Compliance Assurance Monitoring – 40 CFR Part 64, IDAPA 58.01.01.107.3(k)**

Compliance Assurance Monitoring does not apply to this facility because a control device is not used to achieve compliance with any emission limitations or standards. For the purposes of 40 CFR 64, a control device does not include the use of combustion or other process design features or characteristics. Both combustion turbines are furnished with a "Dry Low  $NO_x$  Combustor;" these combustors do not meet the definition of a control device as specified in 64.1. The turbines are not furnished with other devices which satisfy the definition of a control device.

# **8. REGULATORY ANALYSIS – EMISSIONS UNITS**

## ***Unit No. 1 and Unit No. 2 – General Electric PG7111EA Frame 7 Combustion Gas Turbines***

### **8.1 Combustion Gas Turbine Description**

Each combustion turbine package consists of a compressor, a Dry Low  $NO_x$  combustor, a turbine, and an electrical generator. Incoming natural gas is mixed with compressed air as it enters the turbines. The combination of natural gas and compressed air is fired in the combustor section of the turbine. The resulting hot exhaust gas drives the turbine blades that rotate a shaft driving both the inlet air

compressor and the electric generator within the turbine. Some of the rotational energy of the shaft compresses the inlet air, but the majority of the rotational energy of the shaft propels the generator to produce the facility's electrical output.

The turbines are rated to produce approximately 83.5 megawatts of electricity at full load operating conditions, and were installed in 1994. The stacks for each turbine are identical, and the parameters are listed below.

Stack Parameters

Ground Elevation:	2,240 feet
Stack Height:	52 feet from ground level
Exit diameter:	13.8 feet
Exit Gas Flowrate:	1,514,100 actual cubic foot per minute
Exit Temperature:	955 °F

**8.2 Revised Permit Condition 2.15, Tier I Operating Permit No. 055-00040, October 16, 2001**

This permit condition required the permittee to monitor sulfur and nitrogen content of fuel combusted in the turbines in accordance with the requirements of Section 60.334, 40 CFR 60 Subpart GG. Since issuance of the October 2001 Tier I operating permit, Section 60.334 has been revised. The renewed permit has been changed to incorporate the revised monitoring requirements based on the permittee's request. Specifically, Permit Conditions 2.15, 2.15.1, and 2.15.2 of the existing permit have been modified and renumbered as Permit Conditions 3.15, 3.15.1, and 3.15.2 of the renewed permit. Also, Permit Conditions 2.15.3 through 2.15.10 of the existing permit have been removed from the renewed permit.

Section 60.334(h)(3)(i) indicates the owner or operator may elect not to monitor the total sulfur content of natural gas combusted in turbines if the gas quality characteristics in a current, valid purchase contract, tariff sheet or transportation contract for the gaseous fuel specify that the maximum total sulfur content of the fuel is 20.0 grains per 100 standard cubic feet or less. In the October 20, 2005, supplement to the permit renewal application, the permittee submitted a portion of a tariff sheet that indicated the natural gas supplied to the Rathdrum facility shall not contain more than 10 grains of total sulfur per 100 standard cubic feet. Therefore, the permittee is not required to monitor the total sulfur content of natural gas combusted in either turbine.

Permit Condition 2.15 has been revised in the renewed permit to require the permittee to produce a copy of the current, valid purchase contract, tariff sheet or transportation contract for the gaseous fuel to which they are a party to upon request. This requirement is in Permit Condition 3.15.1 of the renewed Tier I operating permit.

Section 60.334(h)(2) indicates the owner or operator shall monitor the nitrogen content of the fuel combusted in the turbine if the owner or operator claims an allowance for fuel bound nitrogen (*i.e.*, if an F-value greater than zero is being or will be used by the owner or operator to calculate the NO<sub>x</sub> emission standard in 60.332). The F-value pertains to the equation in Permit Condition 2.12 of Tier I Operating Permit No. 055-00040, October 16, 2001, and Permit Condition 3.8 in the renewed Tier I operating permit.

The nitrogen fuel monitoring requirements are established in Permit Condition 3.15.2 of the renewed Tier I operating permit. This permit condition indicates the permittee is not required to monitor fuel bound nitrogen content; however, the permittee cannot claim an allowance for fuel bound nitrogen in the equation in Permit Condition 3.8 of the renewed permit without monitoring data collected in accordance 60.335(b)(9) or an approved alternative.



### **8.3 Revised Permit Condition 2.16, Tier I Operating Permit No. 055-00040, October 16, 2001**

This permit condition required the CO CEMS to meet all specifications and requirements of the CEMS Certification Application, including procedures outlined in the Quality Assurance Plan dated December 22, 1999. The permittee has requested a change to the Quality Assurance Plan, and this request has necessitated changes to the permit condition. Specifically, the permittee requested the triggers for quality assurance actions on the CO CEMS be modified to be equivalent with the triggers for quality assurance actions on the NO<sub>x</sub> CEMS installed on the exhaust stacks of each turbine.

Permit Condition 2.16 of the existing permit has been renumbered to Permit Condition 3.16 of the renewed permit. The permit condition has also been modified to remove reference to a specific version of the Quality Assurance Plan and instead reference the most recent Quality Assurance Plan prepared by the permittee. The permittee is also required to make available the most recent Quality Assurance Plan in either hard copy or electronic format to DEQ representatives upon request.

To accommodate the specific quality assurance activity triggers requested by the permittee, Permit Conditions 3.16.1, 3.16.1.1, and 3.16.1.2 were added to the renewed operating permit. These permit conditions establish the triggers based on unit operating quarters rather than calendar quarters.

### **8.4 Revised Permit Condition 2.14, Tier I Operating Permit No. 055-00040, October 16, 2001**

This permit condition regulated the particulate matter grain loading from the turbines. However, the applicable requirement, IDAPA 58.01.01.676-676 *Fuel-burning Equipment*, does not apply to combustion turbines. The regulation applies to sources such as indirect fired boilers. Because the regulation does not apply, it has been deleted from the permit renewal.

The remainder of the facility-wide permit conditions were renumbered as a result of the deletion.

## **9. INSIGNIFICANT ACTIVITIES**

There are several insignificant sources at Avista's Rathdrum facility described in the permit application. These emission units qualify as insignificant due to the quantity of emissions or to the source being specifically listed in IDAPA 58.01.01.317.01. Emission units that are listed as insignificant under IDAPA 58.01.01.317.01.b are listed in the Tier I operating permit in order to be covered by the permit shield, defined in IDAPA 58.01.01.325.01, while the emission units determined insignificant under IDAPA 58.01.01.317.01.a are not listed in the Tier I operating permit. While there are no monitoring requirements for insignificant emissions units at this facility, these units must comply with all applicable federal, state, and local requirements.

**Table 9.1 INSIGNIFICANT ACTIVITIES DESCRIBED BY THE SOURCE IN ACCORDANCE  
WITH IDAPA 58.01.01.317.**

<b>Emission Unit Description</b>	<b>Insignificant Activities IDAPA Citation Section 317.01.</b>
Storage tanks with lids or closure and a capacity < 260 gallons.	317.01.b.i.1
Storage tanks with lids or closure and a capacity ≤ 1,100 gallons; not used with Hazardous Air Pollutants; contents have maximum vapor pressures of 550-millimeters of mercury.	317.01.b.i.2
Storage tanks with lids or closure and a capacity ≤ 10,000 gallons; contents have vapor pressure not greater than 80-millimeters of mercury at 21° C.	317.01.b.i.3
Butane, propane, and liquefied petroleum gas storage tanks with a capacity < 40,000 gallons.	317.01.b.i.4
Combustion source burning exclusively natural gas, butane, propane and/or liquefied petroleum gas with a capacity <5,000,000 British thermal units per hour.	317.01.b.i.5
Welding using not more than 1 ton per day of welding rod.	317.01.b.i.9
Water cooling towers and ponds, not using chromium inhibitors, barometric jets, or condensers, with a capacity ≤ 10,000 gallons per minute, and not in direct contact with process streams containing regulated air pollutants.	317.01.b.i.13
Space heater using natural gas, propane, or kerosene and generating < 5,000,000 British thermal units per hour	317.01.b.i.18
Cleaning and stripping activities and equipment using solutions having < 1% volatile organic compounds by weight. Acid solutions on metallic substrate are not insignificant.	317.01.b.i.26
An emissions unit or activity with emissions less than or equal to 10% of levels contained in IDAPA 58.01.01.006 of the definition of significant and no more than 1 ton per year of any hazardous air pollutant.	317.01.b.i.30

## **10. ALTERNATIVE OPERATING SCENARIOS**

The permittee did not request alternative operating scenarios for the Rathdrum facility.

## **11. TRADING SCENARIOS**

The permittee did not request trading scenarios for the Rathdrum facility.

## **12. COMPLIANCE SCHEDULE**

### **12.1 Compliance Plan**

Avista has submitted a compliance certification indicating that all emission units are in compliance and will continue to comply with the terms and conditions in accordance with IDAPA 58.01.01.314.10. In addition, if there are additional terms or conditions applicable to the source, Avista has stated that it will meet the terms and conditions on a timely basis as required by DEQ. Therefore, Avista is not required to submit a compliance plan.

## **12.2 Compliance Certification**

Avista is required to certify compliance each year for the period of January 1 to December 31, in accordance with General Provision 21. The facility shall submit an annual compliance certification report for each emissions unit to DEQ and EPA within 30 days of the end of the specified reporting period, in accordance with IDAPA 58.01.01.314.09. The compliance certification report shall address compliance of each emissions unit with the terms and conditions of this permit, including fuel usage, visible emissions, and fugitive emissions.

## **13. SEMI-ANNUAL REPORT**

The permittee is required to semi-annually submit reports of any required monitoring and instances of deviations for the periods of January 1 to June 30 and July 1 to December 31 of each year. The reports are to be sent to DEQ within 30 days of the reporting period.

## **14. ACID RAIN PERMIT**

Avista is subject to the acid rain permitting requirements of 40 CFR 72 through 40 CFR 75. The facility does not have any requirements to obtain SO<sub>2</sub> allowance from EPA nor does it have a NO<sub>x</sub> emission limit through these regulations. The substance of the regulation that applies to this facility is the requirement to monitor emissions and report the results. The acid rain portion of the permit was drafted in the form of an EPA model permit. The model permit and recommendations for refinement of the model permit to fit Avista's facility was provided by Mr. Bob Miller, EPA Acid Rain Division, Washington D.C. The substance of the acid rain permit for Avista is that they must comply with the requirements listed on the Phase II application which they submitted.

## **15. PERMIT REVIEW**

### **15.1 *Regional Office Review of Draft Permit***

DEQ's Coeur d'Alene Regional Office was provided a draft permit for review and comment on May 10, 2006.

### **15.2 *Facility Review of Draft Permit***

The facility was provided a draft permit for review and comment on May 10, 2006.

### **15.3 *Public Comment and Affected States Review***

A 30-day public comment period for the Avista Corporation's draft Tier I operating permit will be held in accordance with IDAPA 58.01.01.364, *Rules for the Control of Air Pollution in Idaho*.

IDAPA 58.01.01.008.01 defines *affected states* as: "*All states: whose air quality may be affected by the emissions of the Tier I source and that are contiguous to Idaho; or that are within 50 miles of the Tier I source.*"

A review of the site location information included in the permit application indicates that the facility is located within 50 miles of two state borders (Montana and Washington). Therefore, the states of Montana and Washington will be provided an opportunity to comment on the draft Tier I operating permit.

#### **15.4 EPA Review of Proposed Permit**

At the end of the public comment period, DEQ will prepare a proposed permit taking into account all relevant comments received during the public comment period. The proposed permit will then be provided to EPA for its review as required by IDAPA 58.01.01.366.

#### **16. REGISTRATION FEES**

This facility is a major facility as defined by IDAPA 58.01.01.008.10; therefore, registration and registration fees in accordance with IDAPA 58.01.01.387 apply. The facility is in compliance with registration and registration fee requirements.

#### **17. RECOMMENDATION**

Based on the Tier I application and review of state rules and federal regulations, staff recommends that DEQ provide draft Tier I Operating Permit No. T1-050109 for public comment as required by IDAPA 58.01.01.364.

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## **APPENDIX A**

### **AVISTA CORPORATION RATHDRUM COMBUSTION TURBINE PROJECT**

**T1-050109**

## **AIRS TABLE**

# AIRS DATABASE

## AIRS/AFS FACILITY-WIDE CLASSIFICATION DATA ENTRY FORM

AIR PROGRAM							
POLLUTANT	SIP	PSD	NSPS (Part 60)	NESHAP (Part 61)	MACT (Part 63)	TITLE V	AREA CLASSIFICATION A – Attainment U – Unclassifiable N – Nonattainment
Sulfur dioxide	B						U
Nitrogen oxides	A					A	U
Carbon monoxide	A					A	U
PM <sub>10</sub>	B						U
Particulate	B						U
Volatile Organic Compounds	B						U
Total Hazardous Air Pollutants	B						U
			APPLICABLE SUBPART				
			GG				

- A = Actual or potential emissions of a pollutant are above the applicable major source threshold. For NESHAP only, class “A” is applied to each pollutant which is below the 10 ton-per-year (T/yr) threshold, but which contributes to a plant total in excess of 25 T/yr of all NESHAP pollutants.
- SM = Potential emissions fall below applicable major source thresholds if and only if the source complies with federally enforceable regulations or limitations.
- B = Actual and potential emissions below all applicable major source thresholds.
- C = Class is unknown.
- ND = Major source thresholds are not defined (e.g., radionuclides).
- NA = Not applicable as defined in IDAPA 58.01.01.579, constructed prior to baseline dates.
- PM<sub>10</sub> = Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers.

## **APPENDIX B**

### **AVISTA CORPORATION RATHDRUM COMBUSTION TURBINE PROJECT**

**T1-050109**

### **EMISSIONS ESTIMATES**

## Criteria Pollutant Potential Emissions Estimates

**Table B-1. Facility Wide Criteria Pollutant Potential Emissions**

Pollutant	Control Efficiency	Maximum Potential Emissions (pounds per hour) <sup>1</sup>	Maximum Potential Emissions (tons per year) <sup>2</sup>
Particulate Matter	0%	14	59
PM <sub>10</sub> <sup>3</sup>	0%	14	59
Sulfur dioxide	0%	6	19.8
Carbon monoxide	0%	106	240
Nitrogen oxides	0%	104	235.5
VOC <sup>4</sup>	0%	3.6	15.2
Lead	0%	0.0	0.0

<sup>1</sup> Maximum potential hourly emissions are based on manufacturer guarantees and concurrent operation of both turbines.

<sup>2</sup> Maximum potential annual emissions are based on emissions limits established in previously issued permits.

<sup>3</sup> Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers.

<sup>4</sup> Volatile organic compounds.

## Hazardous Air Pollutant Potential Emissions Estimates

**Table B-2. Facility Wide Criteria Pollutant Potential Emissions**

Pollutant	Emission Factor (lb/MMscf) <sup>1</sup>	Control Efficiency	Maximum Potential Emissions (pounds per hour) <sup>2</sup>	Maximum Potential Emissions (tons per year) <sup>3</sup>
1,3-Butadiene	4.4E-04	0%	8.3E-04	3.5E-03
Acetaldehyde	4.1E-02	0%	7.7E-02	3.2E-01
Acrolein	6.5E-03	0%	1.2E-02	5.2E-02
Benzene	1.2E-02	0%	2.3E-02	9.7E-02
Ethylbenzene	3.3E-02	0%	6.2E-02	2.6E-01
Formaldehyde	7.2E-01	0%	1.4E+00	5.8E+00
Napthalene	1.3E-03	0%	2.5E-03	1.1E-02
Polycyclic Aromatic Hydrocarbons	2.2E-03	0%	4.2E-03	1.8E-02
Propylene oxide	3.0E-02	0%	5.6E-02	2.3E-01
Toluene	1.3E-01	0%	2.5E-01	1.1E+00
Xylene	6.5E-02	0%	1.2E-01	5.2E-01
<b>Total Potential Annual Hazardous Air Pollutant Emissions</b>				<b>8.3</b>

<sup>1</sup> Pounds per million standard cubic foot of natural gas combusted. Emission factors are from Table 3.1-3, *Compilation of Air Pollutant Emission Factors, Volume 1, Stationary Point and Area Sources*, AP 42, Fifth Edition, United States Environmental Protection Agency.

<sup>2</sup> Maximum potential hourly emissions based on concurrent operation of turbines at maximum hourly combustion rate of 942,670 standard cubic feet of natural gas per hour for each turbine.

<sup>3</sup> Maximum potential annual emissions based on 16,848 total hours of operation per year and based on concurrent operation of turbines at maximum hourly combustion rate of 942,670 standard cubic feet of natural gas per hour for each turbine.